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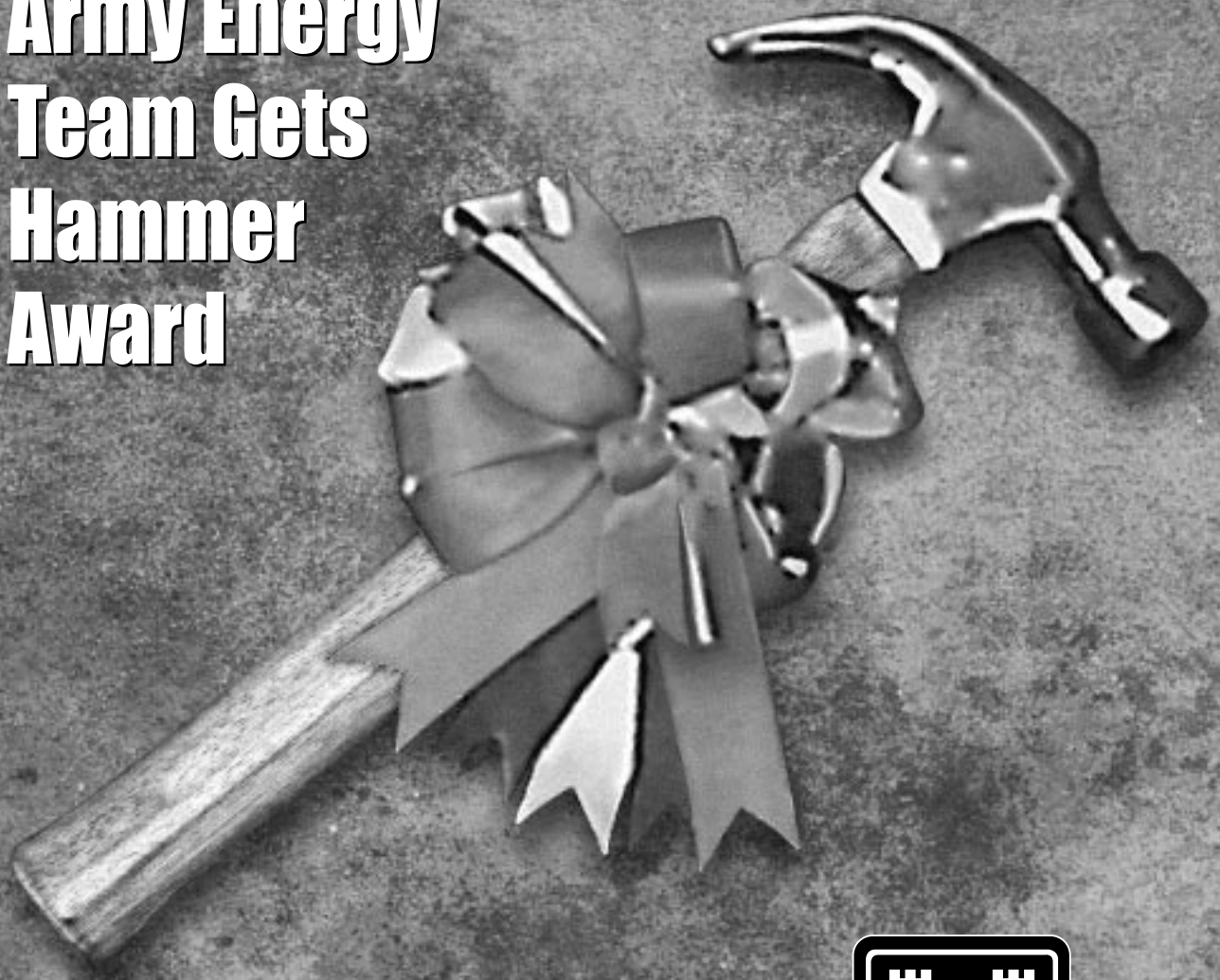
Army Energy Team Gets Hammer Award



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Awards! Energy

21ST ANNUAL SECRETARY OF THE ARMY

Energy Conservation and Water Management Awards

On 4 August 1999, Mr. Ray Clark, Principal Deputy Assistant Secretary of the Army for Installations and Environment, presented the 21st Annual Secretary of the Army Energy Conservation and Water Management Awards to the following installations:

Active Army

1st Place
Headquarters, 25th Infantry Division (Light) and United States Army, Hawaii
Schofield Barracks, HI

2nd Place
HQ, I Corp & Fort Lewis
Fort Lewis, WA

3rd Place
United States Army
6th Area Support Group
Stuttgart, Germany

Army National Guard

1st Place
State of Idaho
Army National Guard

2nd Place
State of Arizona
Army National Guard

3rd Place
State of Minnesota
Army National Guard

U.S. Army Reserve Command

1st Place
USAG-Fort McCoy
Fort McCoy, WI

In addition, all installation energy managers/teams were awarded a check for $2,500 for their outstanding contributions to the energy program at their installations:

Representatives of winning installations pose with Mr. Ray Clark (front row, fourth from right), Principal Deputy Assistant Secretary of the Army for Installations and Environment.

Scott Bly
James Thayer
Brett Langlois
Charles Howell
Dr. Mehdi Ghaderi
Robert Jeffries
Jeff Seaton
Don Juhasz
Ann Olson
John Ryder

The ceremony started on the evening of August 3rd with a reception for the winners and their guests, and continued through August 4th with the awards ceremony and an awards luncheon at the Sheraton National Hotel, Arlington, Virginia.

The following VIPs were present to honor the awardees:

- MG Mario F. Montero, Assistant Deputy Chief of Staff for Logistics
- MG Roger C. Shultz, Director Army National Guard
- MG John F. Kane, AG Idaho Army National Guard
- Mr. Eric A. Orsini, DASA(L)
- Mr. Joseph Plunkett, Assistant DCSPIM
- Ms. Kristine Allaman, Director, Installation Support Center

Installations should start planning for next year's 22nd Annual Secretary of the Army Energy Conservation and Water Management Awards (FY 99) nominations now by submitting their nominations to their MACOM. The MACOM then forwards a nomination to the U.S. Army Logistics Integration Agency. In accordance with AR 11-27, next year's suspense for receipt of nominations is 15 February 2000. Site visits will then be conducted to determine first, second and third place winners in the categories of Regular Army, Army National Guard, and Army Reserve. PWD

Army gets Hammer Award for energy management

by Gerry J. Gilmore

WASHINGTON (Army News Service, September 14, 1999) — Military and civilian employees from three Army organizations that helped save millions in energy dollars were honored with a prestigious award September 9.

The "Army Energy Team" received Vice President Al Gore's Hammer Award from Secretary of the Army Louis Caldera at a Pentagon ceremony. The Hammer is awarded to government organizations that have achieved greater efficiencies in the course of doing business.

Consisting of action officers from the U.S. Army Logistics Integration Agency, the U.S. Army Corps of Engineers and the Office of the Assistant Chief of Staff for Installation Management, the energy team has been credited for achieving a 23.5 percent reduction in Army facility energy consumption from 1992-98, said Caldera.

Army Energy Team efforts during that period, he said, translate into $1.4 billion in savings to taxpayers. "Through [the Energy Team's] leadership, diligence and enthusiasm, the Army has gained distinction within the Department of Defense and throughout the federal government, for effective management of the energy conservation program," said Caldera, who added that Army energy conservation efforts have saved $2.1 billion since 1985.

The Army Energy Team, said Caldera, directly assists Armywide energy cost savings efforts by conducting on-site technical analyses, evaluations, and installation-specific energy awareness seminars.

Jeff Hager (top) and MAJ Ted Phairas of LIA receive their Hammer Award certificates.

Members of the Army Energy Team flank (front row, left to right) MG Robert L. Van Antwerp, Jr., ACSIM; Mr. Louis Caldera, Secretary of the Army; MG Charles C. Cannon, Acting Deputy Chief of Staff for Logistics; and MG Russell Fuhrman, Deputy Commander, USACE.

"These efforts enhance command support for energy awareness and conservation throughout the Army," he said. October is Energy Awareness Month, and the Army has sought to reduce its energy consumption for some time, said Grant R. Keath, an Army Energy Team leader representing the LIA.

"We've had an energy program and goals set forth [to reduce consumption] since 1975," Keath said.

Modern equipment that requires less energy to operate and automatic lighting/air conditioning/heating monitoring and control systems have helped

Army energy conservation efforts in recent years, Keath said. However, he said, it is still important for people to be aware of the need for energy conservation practices.

"A lot of energy savings is gained through new technology, but [energy savings] is a combination of technology and awareness; if you build something and it is not used properly, then that technology doesn't save you anything," Keath said.

Other members of the Army Energy Team include:

- MAJ Ted C. Phairas, LIA
- James L. Campbell, LIA
- Jeffrey L. Hager, LIA
- MAJ James R. Hann, LIA
- MAJ (retired) Susan L. McDonald, LIA
- MAJ (retired) Lawrence R. Haller, LIA
- Harry Goradia, Corps of Engineers
- John R. Lanzarone, Corps of Engineers
- James B. Paton, Corps of Engineers
- Roger E. Cundiff, Corps of Engineers
- Joe A. McCarty, Corps of Engineers
- Andrew M. Jackson, Corps of Engineers
- Qaiser Z. Toor, Installation Management
- Satish K. Sharma, Installation Management
- John J. Krajewski, Installation Management PWD

Gerry J. Gilmore writes for the Army News Service at the Pentagon.

1999 Federal Energy Conservation and Water Management Awards announced

On October 28, 1999, at a ceremony in Washington, D.C., the Department of Energy will recognize the following individuals, groups and organizations for excellence in energy and water conservation. Congratulations to the Army, which leads the Department of Defense with six awards!

Harry Goradia, Military Programs Directorate, is one of three DA individuals being recognized for excellence in energy conservation.

Department of the Army

Individuals

- C. Don Juhasz
- Stephen Rowley
- Harry Goradia

Small Groups

- **Army Energy Team**
  Ken Zandler
  John Lanzerone
  Jeff Hager
  Jim Campbell
  Ted Phairas
- **Walter Reed Army Medical Center**
  Marguerite Morrison
  Ronald Scott
  Regina Larrabee

Organizations

- **US Army Tank Automotive Center**
  Ronald Kraus

Department of the Navy

Individuals

- **Dale Seeley**

Organizations

- **Naval Facilities Engineering Command**
  Herbert Padro
- **USS Antietam**
  Fran Gutierrez

United States Air Force

Individual

- Elizabeth Clement

Small Group

- **Luke Air Force Base**
  Kirk Spudy
  Carl Bruning
  Thomas Myers

Organizations

- **Dyess Air Force Base**
  Tom Denslow
- **Anderson Air Force Base**
  Jeff Szatanek

United States Marine Corps

Small Group

- **Marine Corps Logistics Base Barstow**
  Larry Emmons
  Douglas Sandford
  Stuart Hammons
  Carl Fillingname
  Mark Haskett PWD

Fort Irwin receives Exemplar Award

Two military bases received Exemplar Awards from the Mojave Desert Air Quality Management District for their work to reduce air pollution.

The awards were presented to the National Training Center at Fort Irwin and the U.S. Marine Corps Air Ground Combat Center in Twentynine Palms, according to the air quaility district.

Each year the district presents the Exemplar Awards, the Mojave Desert Air Quality Management District's highest honors, in conjunction with National Pollution Prevention Week.

This year's awards were presented on September 27, 1999, at the District Board Chambers in Victorville, California. PWD

Army slashes energy bills

Controllers help military installation meet energy goals with time to spare

by Alison Otto

The energy mandate facing the Army—reduce building energy consumption by 30 percent by 2005—is no small challenge. Yet an installation of microprocessor-based controllers on boilers and hot water heaters at the U.S. Army Garrison here has already solved most of the facility's requirements for water heating with years to spare.

The units, each only a little larger than a shoe box, have cut down on fuel consumption by 23 percent to 26 percent, for a savings of more than $177,000 a year. Payback is estimated at a year and a half.

A vast military installation that includes Schofield Barracks, Fort Shafter, Wheeler Army Airfield, and Helemano Military reservation, the U.S. Army Garrison in Hawaii houses 15,000 soldiers of the 25th Infantry Division. Located near the city of Wahiawa on the island of Oahu, it spans 30 million square feet of building space, and runs an annual energy tab of $30 million.

While the electric heat pump has been one of the local methods of conserving energy in Hawaii, the Army discovered that alternatives are worth a second look. Despite Hawaii's moderate temperatures, humidity and salt in the air can wreak havoc on that equipment, and the state has one of the highest electric rates in the country.

Microprocessor controls boilers

That's where the MicroTherm L.L.C. computers came in. When a unit is installed on a boiler or hot water heater, it monitors the daily routine of the equipment, including its cycles and temperatures. The microprocessor in the unit assimilates the information, automatically determines how long to keep the boiler or water heater in its "off" cycle, and reprograms the equipment to perform more efficiently. The unit determines if the boiler is oversized or has extra capacity, and scales back the equipment's ignitions to meet the actual needs of the facility.

"The computer literally learns what the personality of the boiler is," says Todd Scheibert, owner of Scheibert Energy Co., and the local distributor for Wellesley, Massachusetts-based MicroTherm L.L.C. "It learns how long it took for the boiler to recover in the last cycle, how far the temperature dropped, and how far the temperature went up before the boiler shut down. It learns this and then it determines how long to hold the boiler in an 'off' condition to maximize the 'off' cycle."

The Army first agreed to experiment with the units in 1997. At that time, after Scheibert proposed a free trial period, the Army's energy manager, Scott Bly, agreed to the installation of three units. They tested the units for six months on three different systems: a propane manifold system, an individual propane tank, and a diesel, low-pressure boiler fired on fuel.

Impressive results

Impressed with the results, Bly finalized the deal: $260,000 for the 100 units and their installation. Most were installed by July of 1998 on heaters and boilers used for showers, laundry, and food preparation at Schofield Barracks. "We considered adding timers to our boilers or converting to heat pumps, but neither could provide dependable, cost effective, low maintenance savings and performance of the unit," says Bly. "Although the heat pump may have a higher efficiency rating, the maintenance costs have outweighed the energy savings. Many of our heat pumps failed due to the rust caused by the environment and substandard materials."

In 1997, before the installation, the garrison's propane consumption for July to December totaled 283,595 gallons, averaging 47,265 gallons a month. At the time, 71 boilers were operating. A year later, after the installation, when an additional 10 more boilers were in use, fuel consumption dipped to 250,232 gallons for the same five-month period, for an average of 41,704 gallons a month. End result: A cost savings of $14,785 a month. (The remaining units were installed on synthetic natural gas or diesel-fired boilers; there is no analysis of that data.) ➤

Microprocessor control units, installed on boilers and hot water heaters, assimilate operating data and automatically determine how long to keep the unit in its "off" cycle.

Scaling back

In many cases, boilers or hot waters are oversized to meet the toughest of conditions, starting and stopping many times a day—often wasting fuel and money and spewing more pollutants than necessary into the atmosphere. Depending on the equipment, a unit may scale back the number of ignitions by 25 or 30 each day, without reducing the temperature. In the case of Schofield, "Every boiler had savings, some were higher, some were lower," says Scheibert. "We had some boilers that got as high as 50 percent savings. They were very much oversized." He adds, "Whenever a boiler turns on, the combustion is very inefficient."

By running diagnostics, the units also identify problems with equipment or ground wiring. At Schofield, the diagnostics test identified some problems with old equipment, which was replaced or upgraded. "In many cases, the installer or diagnostic computer identified opportunities for even greater savings," says Bly.

The unit is a plastic box with a printed circuit board and viewing screen inside. It snaps onto the surface of the boiler, or in some instances at Schofield, on the wall in the boiler room. The unit is equipped with a temperature sensor that attaches to the outgoing hot water pipe, and will override the device if the temperature falls below a programmed minimum temperature because of a sudden change in demand.

Fast payback

"This is the simplest retrofit project I have been involved with, and it provided the fastest payback," says Bly.

The project is part of a sweeping energy conservation program at the U.S. Army Garrison-Hawaii (USAG-HI), which includes lighting retrofits, chiller replacements, daylighting, and cogeneration. "MicroTherm L.L.C. contributed to the USAG-HI being selected as a winner in the Secretary of the Army Energy Conservation Award," says Bly. USAG-HI has claimed the award for the last three years. PWD

Alison Otto writes for ***Army Energy News****.*

(Reprinted from the September 1999 issue of Army Energy News.)

Licensing works for Rock Island Arsenal's contractor operated heating plant

by Jay Richter

In 1991, the Rock Island Arsenal Public Works office began a cooperative effort with CERL to start the process of licensing boiler operators and other employees in the Arsenal central heating plant using the National Institute for Uniform Licensing of Power Engineers (NIULPE) licensing program and their educational materials.

In this same time frame, the program was initiated at the Army level to begin a licensing requirement. The process started at the Arsenal with a blind test by Dan Lee, founder of NIULPE, of the 17 employees of the heating plant. Only three passed the blind test. The blind test provided research information for NIULPE and CERL, and the plant employees learned from their test results what technical areas they needed to have more serious study in to pass the licensing program. (The NIULPE program has licensing levels starting at Fourth, then Third, Second, First, and finally, Chief Engineer.)

"The NIULPE program has licensing levels starting at Fourth, then Third, Second, First, and finally, Chief Engineer."

In 1992, all the employees began a self study program of several months using the educational material for the Fourth Class license. Later they attended formal classes instructed by a licensed NIULPE instructor before taking the Fourth Class license exam, which was held onsite at the Arsenal. At the end of the formal study, all the employees successfully passed the exam and were licensed at the Fourth Class level.

In 1997, the base operations contract for the Arsenal, which included the contracted work in the heating plant, was rewritten. The new contract specifications required the superintendent to possess a minimum of a First Class license, and the boiler operators, tenders, and tender assistants to possess a minimum of Fourth Class licenses. General maintenance, pipefitters, and coal handlers were not required to possess a license.

The contract was written to encourage all heating plant employees to continue the educational process and increase their license levels above the minimum. The encouragement also included the requirement for the contractor to purchase the entire NIULPE study library for each contract employee in the heating plant.

Furthermore, each year the contractor is required to provide training classes for self improvement as needed, per COR approval, and allow employees time off to attend licensing examinations. As a result, six employees at Rock Island Arsenal are now licensed at the First Class level, two employees are Third Class, and ten are Fourth Class. Also, several employees are presently studying for the Chief Engineer license.

The study program has resulted in tangible benefits, and the superintendent of the plant, Doug Leyendecker, has stated that he has seen improved safety in the plant and a new sense of professional pride and personal accomplishment in his employees since the NIULPE licensing program began, and he is very happy that the Army initiated the requirement. Leyendecker also stated that he has used the study library on numerous occasions as a resource for information on operational problems in the heating plant.

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Jay Richter is a mechanical engineer in the Arsenal Public Works Office, Rock Island Arsenal, Illinois.

Conserve with comfort and common sense

by Bill Stein

A slogan as the title of an article? What does this slogan mean to installations? Stay tuned!

I have been working for the Army in the energy management field for the past 11 years. The first three years were at Dugway Proving Ground in Utah, the next year was split between the Army Energy Office and the Department of Defense Energy Policy Office, and the last seven have been at the U.S. Army Intelligence Center and Fort Huachuca in Arizona. For seven of those years, my job title has been Energy Coordinator and Utilities Sales Officer. This means that I am responsible for reducing the use of energy (Demand Side) as well as reducing the cost of energy (Supply Side). At the end of 1992, water conservation was also thrown into the job description.

Last August, I came across an article titled, "The Architecture of False Economy Comes Straight from the Workplace," by Dale Dauten. He started with a quote from Winston Churchill, "We shape our buildings; thereafter, they shape us." Dauten's point was that any change to a building should concentrate on improving productivity and the greatest opportunity is in lighting. At the end of the article, he mentioned air quality, which I assume includes temperature, humidity, and airflow as well as enough fresh air. The title on false economy comes from his example that the energy costs for a typical building come to about $2 per square foot, while the costs for employees are about $200 per square foot.

I checked on what those numbers were for Fort Huachuca. Using the most recent full fiscal year (1998), I came up with $1.03 per square foot for energy and $32.80 per square foot for personnel. My numbers were lower than his because my square footage includes family housing and my personnel costs do not include contractor salaries. Using this productivity reasoning, a one percent increase in productivity is like gaining $0.33 per square foot in efficiency. A one percent increase in energy efficiency with a corresponding cost decrease will only save $0.01 per square foot.

What this tells me is that when you do an energy conservation project such as lighting, your goal should be to have gains in both energy efficiency and lighting quality. The aim is for much higher quality lighting than the existing lighting. When you convert from T-12 lamps with magnetic ballasts to T-8 lamps with electronic ballasts, it is a false economy to use 75 CRI (see definition) lamps instead of 85 CRI lamps, or to choose 3500K color temperature *(see definition)* lamps over 4100K color temperature lamps just to make the energy economics a little better.

As was suggested in Dauten's article, we also reduced the quantity of light because of the improved quality. At Fort Huachuca, we have typically converted four lamp fixtures to either three or two lamp fixtures with a reflector and three lamp fixtures to two lamps with a reflector. There was even a recent project with narrow two lamp hallway fixtures where we removed a lamp with little loss in lighting output.

Types of efficiency measures that increase productivity include:

- Better lighting.
- Natural light.
- Building comfort (insulation, heating, cooling, ventilation, controls).
- Reduced urban heat island effect (light colored roofs, vegetation, soil conservation, water conservation).
- Improved quality of life (automatic lighting controls, automated irrigation systems, reduced maintenance systems).

That's the deeper meaning of the first part of the slogan— Conserve with comfort!

The "common sense" portion is watching the dollars without sacrificing comfort. Lowering your unit cost of energy through negotiation, competitive procurement, or flattening your load profile can do this.

At Fort Huachuca, we lowered the cost of natural gas by purchasing the commodity competitively and also cut the local distribution company's transportation rate in half through a negotiated anti-bypass contract. In FY 95, the last year on full tariff, we were paying $4.50 per Million British Thermal Unit (MBTU) for natural gas. After the change in FY 97, we paid $3.75 per MBTU, and in FY 99, we paid $3.49 per MBTU for natural gas.

If your electrical rate structure has both a demand charge and energy charge, you can effectively lower your unit cost of electricity by flattening your load profile (i.e., reduce your peak demand by conserving and load shifting). At Fort Huachuca, we did this by correcting the plant operation and hardware of two central heating and cooling plants. We allowed the chillers to run only at night to charge a tank and using the chilled water in the tank during the day to cool the buildings. We also installed natural gas cooling (three absorption cycle chillers) and did many energy conservation projects (including lighting and daylighting).

In July 1994, Fort Huachuca had a peak electrical demand of 21,348 Kilowatts (kW). In July 1999, the post had reduced the peak demand to 16,576 kW. In FY 96, Fort Huachuca peaked annual usage at 107,980,400 Kilowatthours (kWh). In FY 99, Fort Huachuca finished the year at 96,712,000 kWh. The annual load factor *(see definition)* went from 60 percent in FY 98 to 66 percent in FY 99. In FY 94, the ➤

Definition of Terms

CRI – The Color Rendering Index shows the lamps ability to show colors naturally. 100 is the maximum. Old style T-12 lamps were usually below 65. The newer T-8 lamps can be purchased with a CRI of as high as 91.

Color Temperature – Also know as Chromaticity, describes the color of light emitted from the lamp. This characteristic is rated in Kelvin (K).

Load factor – the ratio of average electrical demand to peak demand, expressed as a percentage.

CERL adds Partnering Resources to assist facility managers in reducing utility renovation costs

by Marty Savoie

Worker tests one of Gas Research Institute's guided mole systems.

CERL has recently formed an alliance with Gas Research Institues (GRI) of Chicago to assist Federal facility managers in reducing the cost of facility energy system renovations. GRI has a long history of providing technology and products to the gas industry for operations and maintenance cost savings. GRI has a new program where cofunding resources can be used to assist renovation of federal facilities and reduce the overall cost to the facility managers. GRI's goal is to evaluate the performance of new technologies and products in reducing overall renovation costs. Facility managers should contact CERL to determine if the specific renovation project "fits" into the goals of the GRI cofunding process.

GRI has recently introduced a new relining technology in the United States called Starline. It is designed to reduce the overall cost of relining older cast iron gas mains. Another upcoming technology would be used to internally seal large cast iron pipe joints under live gas conditions. GRI introduced a new mobile leak detection system called the Optical Methane Detector last year, and it is now being used by several large gas companies.

New ground probing radar, pipe location systems are also being evaluated. A major trenchless technology product expected to be introduced by GRI late this year is a guided piercing tool. This product is designed to be a very simple, low capital cost guided piercing tool for installing small diameter utilities for horizontal distances up to 150 feet. The tools can be used for any utility installation, including water and sewer piping. Improving the capabilities of these tools will become very important, as more states follow Florida's example in banning the use of unguided impact tools for all utilities.

For more information about this technology, please contact Marty Savoie at CERL, (217) 398-5505, e-mail: m-savoie@cecer.army.mil or Renny Norman at GRI, (773) 399-8298; e-mail: rnorman@gri.org PWD

Marty Savoie is the Principal Investigator, Energy Branch, CERL,

(continued from previous page)

unit cost of electricity was $0.0689 per kWh. In FY 99, the unit cost of electricity was be $0.0676 per kWh.

The net result is that in FY 95, the combined cost for natural gas and electricity was $9.6 million, while in FY 99, the combined cost for natural gas and electricity was below $7.9 million. We are now preparing a competitive solicitation for electric procurement in the year 2000. After a false start this year, it will be the first year competition is allowed in Arizona.

With all that said, you now know the deeper meaning of the Army slogan, "Conserve with comfort and common sense."

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Bill Stein is the Energy Coordinator and Utilities Sales Officer at Fort Huachuca, AZ.

GRI's goal is to evaluate the performance of new technologies and products in reducing overall renovation costs.

YPG continues its energy conservation renewed efforts

by Yolie Canales

Yuma Proving Ground (YPG) continues its energy and water conservation program with renewed efforts by the command to reduce energy and water waste.

YPG has won numerous energy and water management awards for its energy and water conservation efforts in the last several years. The most recent was in 1998 for the Smart Weapons Test Range renewable energy project accepted by Sue Ibrahim in Washington, D.C., from the Department of Energy.

Approximately 7 percent of YPG's facility electrical energy is provided by renewable solar energy. However, the other 93 percent must be furnished from electrical generation plants as far removed as Salt Lake City projects of the Department of Energy from pumped storage and other federal hydroelectric projects such as the Parker and Davis Dams on the Colorado River. YPG must purchase its electrical and facility energy from these distant resources to reduce mission costs.

Water usage at YPG is provided from numerous wells on the installation which are electric pump driven. Most of the water is pumped from the Colorado River Basin aquifer. All valuable water resources pumped or taken from the river basin are strictly controlled or allocated by federal and state agencies in a limited supply to users such as YPG. When you waste water, you not only waste a valuable limited resource commodity, but you also waste energy due to its electric pumping requirements. "It's a double whammy of waste with water," said Jack Nixon, YPG's Public Works Energy Coordinator.

Recently the command was requested to renew its energy and water conservation awareness efforts. YPG's FY 85 to FY 2005 facility use energy goal was set previously at one and one-half percent per year reduction of energy use per square foot of occupied building space of all installation buildings. At the end of FY 98, YPG was on track with an overall reduction of 20.1 percent for the past 13 years from FY 85 usage, more than achieving the required goal.

"However, YPG need not sit back on its laurels," said Nixon. "The reduction of one and one-half percent becomes increasingly difficult to achieve during ever tightening budgets. Much of our past performance reduction was achieved through the use of available budget resources to install more energy and water efficient capital equipment to effect reduction in usage of both energy and water," he continued.

"For example, most building lighting has recently been changed to make it more energy efficient. Now with ever reducing budgets, we must all pull together on an individual effort to monitor any further reductions by eliminating and stopping waste at the points of usage by diligent effort on everyone's part here on the installation in order to achieve further reductions," continued Nixon.

The commander's goal will continue to be achieved only if everyone involved assists in the process. COL Robert Filbey has directed everyone at YPG to redouble the effort to make certain that we reduce any observed water or energy waste in all of YPG's operating buildings and grounds facilities.

"Water goals as yet remain to be established by major command," said Nixon. "Water usage at YPG is not all metered, requiring a different conservation approach to monitoring usage by reduction of waste through automated irrigation of yards, Cox Field and associated park areas in the main administration area of YPG."

According to Nixon, "Energy resources can be conserved simply by adhering to the ethic 'turn it off if it's not in use' by all YPG personnel involved in monitoring the use of building and grounds."

YPG has all buildings assigned to building energy monitors/custodians who are responsible to see that energy and water waste are reduced and under control. "If you see equipment, energy or water waste in your building or area of operation, report it to the monitors so they may correct it either by reporting it for repair or assuring that it is secured when not in use," said Nixon. "By all of YPG personnel cooperating in this effort, we shall continue to achieve the commanders' goal of energy and water waste reduction toward the FY 2005 goal."

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Yolie Canales is a public affairs specialist at Yuma Proving Ground, AZ.

Greening the Government through efficient energy management

On June 3, 1999, President Clinton signed Executive Order 13123 for efficient energy management in the Federal Government. Following are the major goals and strategies of this Executive Order:

- 35 percent improvement in buildings' energy efficiency by 2010 using 1985 as the base year.
- 25 percent improvement in industrial and laboratory facilities by 2010 using 1990 as the base year.
- 30 percent reduction in greenhouse gas emissions by 2010 using 1990 as the base year.
- Expand use of renewable energy and set new goals.
- Enhance water conservation and set new goals.

Executive Order 13123 is posted at www.eren.doe.gov/femp.

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SWD ISO conducts site survey at Fort Bliss

Does your installation have a backup plan in case things get screwed up in the Year 2000? Fort Bliss plans to use its 15MW generator plant to provide emergency power at the installation in case of a power outage due to the Y2K problem. For years, Fort Bliss has used this generator plant for peak shaving purposes, trimming energy demand during high peak periods.

The installation requested the SWD Installation Support Office (ISO) to conduct a site survey from 24-26 August 1999 to provide a system evaluation of the 15MW generator plant. The site survey will be used to determine if the generator plant has the capability to provide the necessary emergency power should a Y2K problem occur.

"This is the first technical assignment for the SWD-ISO in support of Fort Bliss," said Tom Luu, a former member of the Installation Support Center who recently relocated to the Dallas/Fort Worth area. "SWD-ISO is looking forward to supporting the other installations in SWD in the near future."

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Facilities Engineering

Boiler contracts still available, just moved

by Nelson Labbé and John Lanzarone

You may remember that the Installation Support Center (ISC) used to maintain multi-year contracts for performing boiler safety inspections, boiler operator training and certification, and boiler/cooling water quality assurance (QA). When ISC was dissolved, these contracts were temporarily reassigned. The Sacramento Installation Support Office (ISO) handled the boiler inspection and operator training contracts during the interim period, and the boiler/cooling water QA contract found a foster home in Military Programs, Corps Headquarters, with Nelson Labbe, the same COR who handled this contract at ISC.

With the beginning of FY00, all three contracts were permanently transferred to the Huntsville Engineering Support Center. All of the services available under these contracts are now offered on a reimbursable basis through the Huntsville Engineering Support Center. If you'd like more information about these contracts, please call Ed Gerstner at (256) 8951503.

Here's a quick refresher of what each contract covers:

Boiler Inspection

The boiler inspection contract covers high-pressure steam boiler (above 15 psig) and high temperature water boiler (above 250F) annual inspections required by AR 420-49. The contractor can also perform deaerator tank inspections (to include ultrasonic and wet fluorescent magnetic particle examinations), unfired pressure vessel integrity studies and inspections (e.g., air receiver tanks and cascade heaters), ultrasonic thickness testing of unfired pressure vessels, and failure analysis of boilers for the Army.

Boiler Operator Training and Certification

The boiler operator training and certification contract provides boiler operators formal training and the opportunity to take the National Institute for the Uniform Licensing of Power Engineers (NIULPE) license examination. AR 420-49 requires a NIULPE Fourth Class operator license. The contract also provides for training and testing for NIULPE Third through Chief Engineer levels, chiller plant operator refresher training, and EPA approved training and certification for working with chlorofluorocarbon refrigerants.

Boiler/Cooling Water QA

The boiler/cooling water QA contract provides monthly/quarterly evaluations of the water chemistry for these systems. This QA for boiler systems water is required by AR 420-49. The contractor will perform evaluations based on boiler water, condensate and makeup water samples sent by operators to verify that the water is treated properly to prevent corrosion and scale in the system. These QA services are important because a boiler can quickly corrode or scale resulting in wasted fuel, damaged equipment and reduced safety if the water chemistry is not properly controlled. The boiler water QA services are particularly useful in monitoring the operation of boiler plants that have been contracted out. PWD

Nelson Labbé and John Lanzarone work in the Military Programs Directorate.

Are your heating boilers prepared for winter?

by John Lanzarone

As the nights begin to cool and autumn comes upon us, most people think of football, deer hunting or if they've stacked enough firewood. While DPW heating shop people are no different than the rest of us, they're also thinking of the coming heating season. This is a very busy time for them, getting all the heating equipment started for the coming cold weather.

To get your heating boilers ready for the winter season, follow these steps to prepare your systems for cold weather operation and avoid unexpected equipment failure:

1 Have a qualified person disassemble the low-water cutout and makeup-water feeding device. Clean, recondition, and test before the boiler is put into service.

2 Clean burner assembly and adjust combustion controls for maximum efficiency.

3 Test the safety/relief valve for freedom of operation. After the boiler is operating, check that the valve reseats properly.

4 Check all pressure and temperature controls and gauges, and clean the water-level gauge glass so that it indicates proper water level at all times.

5 Repair or replace any leaking pipes or fittings on the boiler or anywhere in the heating plant.

6 Insulate water lines exposed to freezing temperatures. Steam and condensate lines should also be insulated to reduce energy losses and for safety concerns. Some steam traps are subject to freezing, so be careful when selecting trap types.

7 Check all mechanical equipment, such as fans and pumps, for smooth operation and proper lubrication.

8 Establish and maintain a record of boiler operation.

9 Clean boiler heating surfaces of all deposits to avoid waste of fuel and problems with the boiler. Inspect refractory.

10 Clean the boiler water surfaces if the boiler design allows; otherwise, consider using a suitable chemical to minimize buildup of scale and prevent corrosion.

In addition to the above steps, the following should be performed, depending on whether a boiler is producing steam or hot water:

For Steam Boilers:

- ☑ Check condensate float valve.
- ☑ Check pressure controls.
- ☑ Check condensate return pump(s).
- ☑ Check condensate tank.
- ☑ Check feed and transfer pumps.
- ☑ Check draft fans/switches.
- ☑ Check gas safety switches.

For Hot Water Boilers:

- ☑ Check circulating pump system.
- ☑ Check water cutoff.
- ☑ Check water feeder.
- ☑ Check shutoff valves.
- ☑ Check temperature. controls.
- ☑ Check draft system.

The three boiler related contracts that CPW/ISC used to maintain; Boiler Water Quality Assurance, Boiler Operator Training/Certification, and High Pressure Boiler Safety Inspections, have all been transferred to the Huntsville Engineering and Support Center. Please call Ed Gerstner at (256) 895-1503 for assistance with these contracts.

For more tips and information about heating systems, please call John Lanzarone at (202) 761-8634, or e-mail: john.r.lanzarone@usace.army.mil PWD

John Lanzarone is a mechanical engineer with the Military Programs Directorate.

Calling all heating equipment

by John Lanzarone

In addition to checking boilers, all heating equipment, to include unit heaters and furnaces, should be prepared before being placed into service for the heating season. These checks should include examination and repair or replacement of the suspect items.

A thorough pre-season checkup will include an examination of:

- Fuel connections (such as gas lines).
- Exhaust gas outlets (chimneys and flue pipes)
- Burners.
- Safety controls (such as limit switches).

Also, be aware that birds may have made nests in chimneys and/or flues. Starting up heating equipment with a blocked or even a partially blocked chimney/flue pipe can be very serious. Flue gases, to include carbon monoxide, may back into the building exposing buildings occupants to carbon monoxide poisoning.

This is also a good time to ensure that any materials or equipment that may have been recalled are repaired or replaced, as required by the recall. While there is no one source to verify if equipment that a DPW shop may have responsibility for is covered by a recall, the Consumer Product Safety Commission (CPSC) is a good place to start checking. Go to http://www.cpsc.gov and see if any covered equipment is addressed by a recall.

For example, here's an item that recently appeared at the CPSC site: "In cooperation with the U.S. Consumer Product Safety Commission (CPSC), York International Corp., of York, Pa., is recalling about 21,000 York International Corporation Diamond 80 downflow mid-efficiency furnaces with model numbers starting with P2DP, PBKD, and XED02..." The website gives further details about this particular recall and others.

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Ground-Source Heat Pumps

by Gary Phetteplace and Dale Otterness

Ground-source heat pump (GSHP) technology has gained widespread acceptance in the private sector in recent years. A number of military bases have installed systems and, due to their success and the general growth of the concept in the private sector, more opportunities are being discovered within DoD.

The largest application to date in the military has been at Fort Polk, Louisiana, where all 4003 family housing units were retrofitted with GSHP systems under a shared energy saving contract. Electric energy consumption in the family housing area was reduced by one third and peak summertime electrical demand was reduced by more than 40 percent.

GSHP systems use the ground as a heat source during the heating season and as a place to reject heat in the cooling season. GSHP achieve efficiency improvements over air source heat pumps because the ground is a better heat source or heat sink than air since its temperature is relatively stable. Some systems use groundwater, where available, as the heat source/sink, while others use various methods for thermally connecting or "coupling" the heat pump system with the ground.

Vertical ground-coupled are the most common type of GSHP system and are probably the most appropriate system for Army installations. Vertical U-tubes of high density polyethylene piping are placed in boreholes and are manifolded in shallow trenches near the surface.

Vertical ground-coupling systems have several advantages: low land area requirements, stable deep soil temperatures with high potential for heat exchange with groundwater, and adaptability to most sites. Among vertical ground-coupling's disadvantages are potentially higher cost, problems in some geological formations, and the need for an experienced driller/installer.

Groundwater makes an excellent heat source/sink for heat pump systems. For larger scale systems where sufficient quantities of groundwater of adequate quality are available, a groundwater system will often be the least expensive GSHP system. These systems benefit from a stable source temperature and have a longer history than other types of GSHP systems.

The disadvantages of groundwater based systems are environmental regulatory requirements, potential problems where water quality is poor, and their site-specific nature.

GSHPs have a number of advantages compared to conventional equipment such as variable air volume (VAV) systems. Because individual heat pumps serve each zone, control and comfort are superior to systems that use large central equipment. This ideal zone control, coupled with the unitary design of the equipment, results in simple but highly reliable systems that can be maintained by personnel not needing special skills. Operating costs for GSHP systems tend to be lower than for conventional equipment, especially when all the parasitic losses of large central systems are considered. The heat pumps themselves, like their sister technology, the household refrigerator, tend to be very reliable, with low maintenance and long life expectancy. GSHP systems require no on-site fuel storage and are considered a green technology with no on-site, unregulated emissions. Finally, because the equipment is distributed around the building, mechanical-room space requirements are greatly reduced or, in some cases, eliminated altogether.

The primary disadvantage of GSHPs is that they tend to have higher initial costs than some conventional systems, especially in family housing applications. In larger multizone buildings, however, they are able to compete favorably on a first-cost basis against some of the more costly conventional systems. In many other applications, any additional initial investment will be quickly returned in reduced operating and maintenance costs.

In some regions, the lack of GSHP infrastructure can be an additional disadvantage. In areas where GSHPs have not seen much development, it may be difficult to locate experienced designers and installers, but it is often possible to procure these services from outside the area at competitive prices.

The Engineer Research and Development Center's Cold Regions Research and Engineering Laboratory (CRREL) has conducted a number of research and demonstration projects on GSHP technology. With the lessons learned from these projects and the help of the leading design authorities in the U.S., CRREL has conducted three short courses for designers on GSHP systems. We expect to offer more of these courses in the future. Please e-mail: gephet@crrel.usace.army.mil if you are interested.

There are a number of sources of information on GSHP systems. The Geothermal Heat Pump Consortium (GHPC), located in Washington, D.C., is one such source. They may be contacted at (888) ALL-4-GEO or visit their website at http://www.ghpc.org. The GHPC is a public/private venture funded by DoE, electric utilities, and manufacturers of heat pumps and allied equipment used in the industry. Their primary focus is marketing the technology, but they do provide various useful materials and services.

Another source of information is the International Ground Source Heat Pump Association (IGSHPA) located at Oklahoma State University. They can be reached at (800) 626-4747 or via their website at http://www.IGSHPA.okstate.edu. IGSHPA provides training (primarily for system installers), design software, and a number of valuable publications.

The Geo-Heat Center, funded by DoE and located at the Oregon Institute of Technology, also can provide information and assistance. They can be reached at (541) 885-1750 or via their website at http://www.oit.edu/~geoheat. PWD

Gary Phetteplace works in the Applied Research Division at CRREL. Dale Otterness works in the Engineering and Construction Division, Military Programs Directorate.

ESPCs can help installations meet energy goals

by Bobby Starling

President Clinton's Executive Order 13123 on efficient energy management is straightforward. Issued June 3, 1999, it states, "The Federal Government, as the nation's largest energy consumer, shall significantly improve its energy management in order to save taxpayer dollars and reduce emissions that contribute to air pollution and global climate change."

It specifies goals for significant energy consumption reductions. By the year 2010, military installations will have to cut their energy usage by 35 percent compared to usage in 1985.

That will be a difficult goal to reach by traditional energy conservation methods, according to Bobby Starling, Energy Program Manager for the U.S. Army Engineering and Support Center, Huntsville, Alabama. "Predictions indicate that the Army will need $800 million in contractor construction to meet the President's energy reduction goal," Starling said.

However, Starling has a way to help. That help is called Energy Savings Performance Contracting (ESPC). He explained, "The purpose of ESPC is to leverage scarce operations and maintenance dollars to increase the energy efficiency of facilities and reduce energy consumption. There is also a side benefit. Installations get new equipment and reduce maintenance costs by using private capital."

The concept is not a new one, but it is innovative. An ESPC is a partnership among the Corps of Engineers, a government facility and private industry. In this partnership, the contractor provides the design, capital investment, construction, and operation and maintenance for new energy efficient equipment, products, or services. The contractor provides the investment needed for the resources and then receives a profit from the energy savings the project generates. The resulting savings is shared between the government and the contractor.

"We've been in the business about 15 years," Starling said, "but, in the last two years, there has really been significant growth in the use of our capability." During the Corps of Engineers program's lifetime, ESPCs have generated $156 million in contractor investment at military installations. However, $104 million of that investment took place during fiscal 1999 alone. In fiscal 1998, contractor investment came to about $13 million. "In just the past year, the vast majority of contractor investment has been made. You now see exponential growth," Starling emphasized.

That growth came in large part from two Huntsville Center solicitations that cover the entire United States. One issued in 1996 and one in 1997. The Huntsville Center's Energy Team awarded contracts to eighteen firms overall, fifteen unrestricted plus three small business set-asides. "This is important because of the scope of the contracts," Starling said. "Several contractors are needed to maintain responsiveness to our customers' needs."

And, the needs are extensive. Installations have received a variety of energy-conserving equipment such as new lighting at Fort Bragg, North Carolina; new heat pumps for family housing at Fort Polk, Louisiana; and a central boiler plant at Tobyhanna Army Depot, Pennsylvania. Maintenance of equipment is often a concern. In an ESPC, the maintenance of that new equipment is covered throughout the life of the contract. That could be as long as 25 years.

These benefits come to the installation at no greater cost than if they did not use the program at all because the ESPC contractor is paid from the savings the project generates, according to Starling. The exact amount of the contractor-installation split is negotiated for each task order awarded. But, according to Starling, the contractor gets about 90 percent of the savings generated. The term of the agreement usually runs for 15 years.

Huntsville Center also is broadening its partnership with Corps of Engineers districts in an effort to add even greater value to the concept. The districts, which have close customer service relationships with installations within their geographic boundaries, will eventually take over the majority of field execution.

There is no "free lunch," though. The installation customer has to provide funding to the Corps of Engineers for engineering, contracting, project management and legal support for using its existing ESPCs. However, that cost is only about one percent of the installation's annual utility bill.

"ESPC is a good deal for military installations already, but we have just begun to scratch the surface of their potential," Starling stated. "This program brings in new equipment and contractor-provided maintenance for that equipment while creating greater energy efficiency. You get all of this at a cost that is no greater than taking no action on energy conservation at all," he summarized. "It's a win-win situation."

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Bobby Starling is the energy program manager at the Corps of Engineers, Huntsville Center.

Energy Savings Performance Contracts

- ✔ 48 projects underway
- ✔ $6.84 Million actual yearly yavings
- ✔ $24 Million accrued savings as of 30 September 99

Fort Bragg's ESPC Program—Something to brag about!

by Georges Dib

The Fort Bragg Public Works Business Center (PWBC) and its Energy Savings Performance Contract (ESPC) partners, Honeywell and the U.S. Army Corps of Engineers, began implementing a comprehensive ESPC program in mid 1997. Since that time, eleven Task Orders have been awarded with a value of more than $17,000,000. They are generating energy and O&M savings in excess of $2,700,000 annually.

Initially, there was a lot of skepticism at Fort Bragg on the viability of ESPC and some managers were reluctant to be involved. Our positive results have created a situation where organizations at Fort Bragg are now competing to see whose area will move up on the ESPC priority list.

Another benefit of ESPC for Fort Bragg is that we are working very closely with Honeywell to develop and implement, as part of our long-term strategy, a post-wide Energy Center. This center will enable us to operate, monitor and troubleshoot the performance of the major energy plants and facilities throughout Fort Bragg from a central location within the PWBC compound.

A total of 49 potential projects estimated at $50,000,000 have been identified. In addition to the eleven awarded, another ten projects are in the final stages of development. The initial projects involved 43 buildings at Fort Bragg's Simmons Army AirField (SAAF). We decided to assign Honeywell SAAF as a test case so that we could evaluate the viability of ESPC as well as assess their capabilities. The results were outstanding, demonstrating that federal installations, such as Fort Bragg, can implement aggressive cost and energy savings strategies using ESPC.

The ESPC projects are prioritized by the ESPC Strategic Team, which is co-chaired by the Garrison Commander, COL William C. David, and the Director of the Public Works Business Center, COL Robert L. Shirron. Following is a brief description of the projects awarded/completed to date.

Task order number one was a small lighting job at SAAF which we used as a bore cleaner to do a check out of the ESPC process. Following closely in its footsteps was task order number two, a comprehensive project at SAAF which included the following energy conservation measures (ECMs):

- Installing approximately 22,000 linear feet of natural gas pipeline enabling SAAF to be converted to natural gas systems.
- Converting 28 boilers from oil to natural gas.
- Replacing the forced induction heating in the hangars with radiant heating.
- Implementing building automation controls and central monitoring system.
- Installing a comprehensive lighting retrofit and day-lighting system.
- Converting an aging central plant to individual boilers counteracting steam distribution losses along with much more effective hangar heating.
- Replacing an aging and oversized 450-ton centrifugal chiller operating at 2.3kW/ton with a 250-ton chiller operating at .7kW/ton.
- Implementing high efficiency motor replacements.

The third task order involved four buildings at the Officer's Club complex where a multitude of individual systems that had been added throughout the years were combined into a central system. A comprehensive HVAC upgrade was implemented along with Heating, Control and Lighting Systems improvements.

The fourth task order involves the Joint Special Operations Command (JSOC) compound, where four ECMs are being installed in this high security area. In addition to HVAC and Lighting, a Control System ECM is being implemented in 28 buildings to replace an old pneumatic system. This will enable JSOC personnel to monitor and control items such as fans, heat pumps, boilers, chillers, pumps and generators from a central location. The fourth ECM is overall electricity load management for the JSOC site.

The fifth and sixth task orders are "lighting only" projects in 207 buildings in the 82nd Airborne area. We limited this project to lighting only in order to remedy a lighting problem in our vehicle maintenance facilities (VMFs), where we had an average Illuminating Engineering Society (IES) lighting level of 15 versus a minimum standard of 50. Bringing the lighting levels up to standard would also increase the energy consumption, negating the benefits of ESPC. As a result, Honeywell developed a project that encompassed VMFs, barracks and administration buildings. We were able to create sufficient savings in those other buildings to bring the VMFs up to standard while improving the lighting quality and level in all of the buildings and also achieving our ESPC goals.

The seventh task order involved implementing Heating, Cooling, Control, and Lighting Systems improvements in 15 buildings in the Knox Street warehouse area. Heating involved decommissioning the boiler plant and replacing it with a new gas-fired 1,000 MBH steam boiler and gas-fired infrared heaters. Window AC units were replaced with package units. Lighting was replaced or upgraded throughout and brought up to IES standards in a large warehouse building. Control system improvements were also implemented throughout the warehouse complex.

The eighth task order involves Control and Lighting Systems improvements at the NCO and Yntema Clubs. The control system ECM will provide monitoring and control of the existing equipment. It also includes an override push button panel in the management office along with a portable operator terminal for management to schedule and set points. ➤

The ninth and tenth task orders involve heating and control systems improvements in 26 buildings in the A&C areas. The building types include VMFs, a medical clinic, office buildings, range control and storage facilities. The thrust of these task orders is to take these buildings off a central steam plant. We will enhance the buildings by converting them from the existing steam service to gas-fired heating units in the office areas, gas-fired infrared in the high bay areas and gas-fired hot water heaters and boilers.

The eleventh task order is to implement HVAC, control and lighting systems improvements in eleven Physical Training facilities throughout Fort Bragg. Air conditioning units are being replaced and pneumatic controls are being upgraded to DDC (Direct Digital Control).

Our ESPC program is still in the early stages and we continue to improve our processes, discover new opportunities, and look for innovative approaches to resolve our challenges. It is very clear to Fort Bragg that without ESPC, we would have a much more difficult time in addressing the concerns and problems of our people as well as achieving our Energy Policy ACT goals.

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Georges Dib is the Energy Coordinator at Fort Bragg, NC.

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Army emphasis on Energy Savings Performance Contracts

Executive Order 13123, issued on 3 June 1999, renewed the focus on saving energy. Once again, the emphasis on reducing energy, improving our facilities, and using new technologies, has moved to the forefront as a means of improving utilities and energy supply infrastructure within the Army.

Energy Savings Performance Contracting (ESPC) is a key tool in the Army's toolbox for achieving energy reductions, reducing our utility bills, and improving our facilities for our soldiers. ESPC is a contracting mechanism authorized by 42 USC 8287 and 10 USC 2865 and 2866 which allows the government to pay for energy services and energy efficient upgrades through the savings on our utility bills generated by those improvements. The authorization allows ESPC contracts to be entered into for up to 25 years. The key is to combine quick payback projects, such as lighting retrofits, with slow payback projects, such as improvements to a heat plant, to generate a total program of energy efficiencies over an 8-20 year payback period.

EO 13123 changed our energy reduction goal from 30 percent by 2005 based upon the 1985 baseline to 35 percent by 2010. For the Army to reach this new target, we must spend more than $800 million.

Where does the money come from? We all realize the limits of funding available through our normal resource channels and the challenges commanders face on a daily basis to meet the mission and take care of the soldier. ESPC provides the Army a means to access private capital to make the necessary improvements.

Energy Services Companies (ESCOs) are in a position to help the Army meet its targets and they have the capital to improve our facilities. Using an ESPC contract, the ESCO will change the lighting fixtures in our facilities, replace an antiquated HVAC system, and make other energy efficient improvements. The ESCO will be paid from the savings the government receives from our lower utility bills. A long-term partnership is formed when an ESCO is assigned to an installation and enters into a task order to improve our facilities. The ESCO personnel become an augmentation of the government staff to help identify ways to improve the facilities, reduce energy, and save money.

The Office of the Assistant Chief of Staff for Installation Management (OACSIM) has policy and oversight of Army installations and the management of our installations. OACSIM recently completed a review of the Army's use of ESPCs and the process. In meetings with industry, installations, MACOMs, and the contracting agencies who support ESPC, an updated and expanded guidance has been written. The guidance will be forwarded to Army MACOMs this month.

The revised guidance provides a higher level of detail on the ESPC process, focuses on the partnership of the government and ESCO, roles, responsibilities, and most importantly, how to get an ESPC going at the installation.

OACSIM strongly encourages all Army installations to use the ESPC tool to improve facilities and the quality of life for our soldiers. The ESCOs are ready, willing and able to help us meet or exceed the energy reduction goals established by the EO. Contact one of the contract providers, such as Corps of Engineers, Huntsville Engineering and Support Center, Defense Energy Support Center, or MEDCOM (for Army medical facilities) and see the savings, reductions, and improvements that your installation can achieve.

For more information on ESPC, please contact Regina Larrabee, ACSIM ESPC Program Manager, at (703) 428-8030 DSN 328, e-mail: Regina.Larrabee@hqda.army.mil PWD

Louisville District assists Fort Knox ESPC

by Kim Gillespie

The Energy Savings Performance Contracting (ESPC) Program at Fort Knox, Kentucky, has proven to be a successful partnership with the installation, the Corps of Engineers' Louisville District and the Corps' Engineering and Support Center, Huntsville, Alabama, according to those involved. "This is our first awarded task order with Corps district involvement under the area-wide 46-state ESPC contracts, and Louisville District has proven to be a terrific asset to both us and Fort Knox," said Sally Parsons, Huntsville Center ESPC project manager.

The first task order under this indefinite deliver/indefinite quantity contract was issued in March 1999 to Duke Solutions. The work covered lighting system retrofits at Fort Knox. The initial capital investment was $488,062 and the total annual energy and operations savings are estimated at $61,671. The performance period covers 11 years.

"The lighting retrofits were just the first step in a much larger ESPC program for Fort Knox. Lewis Graham, Louisville District project manager for the Fort Knox Director of Business Operations Support (DBOS) Office was the key element in helping us get this program off the ground at Fort Knox," emphasized Parsons.

The ESPC program works by having the contractor provide the capital investment for the design, construction and maintenance of a project. Energy savings generated are used for project maintenance, and ultimately shared by both the customer and the contractor. To get an ESPC off-the-ground and operating for the customer, the ESPC contractor develops the scope of work for each task order, but that requires a great deal of information and decision-making from the customer.

"Most customers, like Fort Knox, don't have the manpower to do all this work alone, and that's where the District comes in and assists. Lewis was able to assist with the day-to-day legwork involved," said Parsons.

Gary Meredith, energy project manager for Fort Knox, echoes Parsons' sentiments. "The ESPC is a great thing for the installation, but with a staff of one (me), it is hardly doable. The support that Lewis gave was invaluable and made the effort much easier."

Meredith also noted that for first-time ESPC customers, the program involves a different thought process from what most government agencies use. "It requires a different thought process, but in the long-run, it's going to be a good thing for Fort Knox and for the government."

Graham works for Louisville District in the DBOS office and admits having worked at Fort Knox for almost two years helped with both the interpersonal relationships and the ESPC requirements. "I think the process has gone so well for us because I received training for the ESPC program at Huntsville Center and I understood what we were trying to accomplish. When the opportunity for us to implement the program at Fort Knox came up, I went back again to the training with Gary so I could learn how best to facilitate the process both ways," said Graham.

Now that the first task order has been successfully initiated, a second much larger and more complex task order is being put together. The work involves:

- Improved electrical rates and increased utility credits.
- Installation of more efficient hot water heaters, motors and steam traps.
- Replacement of steam food service equipment.
- Construction of a new direct supply line for natural gas.
- Installation of building insulation.
- Replacement of windows.

The initial capital investment is expected to exceed $10 million, with total annual energy and operations savings estimated at $1,036,487. The performance period is estimated to be 16 years.

"The teamwork between Louisville District and Fort Knox seems to be working just as smoothly on this second task order," said Parsons.

Parsons said Huntsville Center has been so pleased with the results of the teamwork that when a new customer approached Huntsville Center about setting up an ESPC program for them, Huntsville Center recommended Louisville District to provide additional on-site ESPC support.

"Having Louisville District involved with the ESPC program is making my job a lot easier," concluded Parsons.

POC is Sally B. Parsons, ESPC Project Manager, (256) 895-1887, e-mail: sally.b.parsons@hnd01.usace.army.mil PWD

Kim Gillespie is a public affairs specialist for the Huntsville Center.

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FEMP training

The Federal Energy Management Program (FEMP) mission is to lead the way for a more efficient and less costly government by advancing energy efficiency, water conservation, and the use of solar energy and renewable energy sources. How does FEMP do that? Through partnerships, leveraged resources, technology transfer, and training. FEMP is divided into three parts:

1 Training courses (which teach students how to achieve energy efficency and water conservation at federal facilities).

2 Training Event Locator System (which is designed to help find related training courses and conferences provided by universities, professional associations and private organizations).

3 FEMP-Sponsored Symposia at national energy and water management conferences.

POCs for web-based courses are Terry Doyle, (202) 628-7400 x500, for Designing Low-Energy, Sustainable Buildings, and Edmonds Community College, (425) 640-1010 or http://www.edcc.edu/ for FEMP Lights.

POC for all telecourses is Heather Schoonmaker, (423) 576-9135/9137, or e-mail: schoonmh@orau.gov

PWD

FEMP FY 2000 Training Schedule

1999	
1 Nov-1 Dec	Designing Low-Energy, Sustainable Buildings (Web Course)
2000	
25-26 Jan	Life-Cycle Costing (Project-Oriented), Washington, DC
8 Feb	Introduction to Facility Energy Decision System (FEDS), Atlanta, GA
9-10 Feb	Advanced Facility Energy Decision System (FEDS), Atlanta, GA
23-24 Feb	Water Resource Management, San Diego, CA
7 Mar	Energy Management Telecourse: Part 1 (Energy Fundamentals; Mechanical and Electrical Systems)
14 Mar	Energy Management Telecourse: Part 2 (Operations and Maintenance Management; Energy Codes and Standards; Fuel Supply and Pricing; Energy Accounting Analysis)
21 Mar	Energy Management Telecourse, Part 3 (Energy Savings Performance Contracting; Buying Energy Efficient Products)
28 Mar	Energy Management Telecourse: Part 4 (Life-Cycle Costing (Basic); Water Resource Management; Energy Conservation Opportunities)
3 Apr-9 Jun	FEMP Lights (Web Course)
19-20 Apr	GLOBALCON – Dallas, TX (FEMP Symposia)
25-26 Apr	Operations and Maintenance Management, Boston, MA
25-26 Apr	Federal Commercial Building Standards, San Francisco, CA
27-28 Apr	Designing Low-Energy, Sustainable Buildings, San Francisco, CA
15-16 May	Life-Cycle Costing (Basic), Denver, CO
6-7 Jun	Federal Commercial Building Standards, Chicago, IL
8-9 Jun	Designing Low-Energy, Sustainable Buildings, Chicago, IL
16-21 Jun	Solar 2000 (ASES), Madison, WI (FEMP Symposia)
21-23 Aug	Energy 2000 , Pittsburgh, PA (FEMP Symposia)
27-28 Sep	IEEC, Milwaukee, WI (FEMP Symposia)
25 Sep-1 Dec	FEMP Lights (Web Course)

PROSPECT course for energy managers

The energy Policy Act of 1992 (Public Law 102-486) requires the Army to train its energy managers so they are proficient in the following areas:

- Fundamentals of building energy systems
- Building energy codes and applicable professional standards
- Energy accounting and analysis
- Life-cycle cost methodologies
- Fuel supply and pricing
- Instrumentation for energy surveys and audits

Army PROSPECT Course #55, Energy Management in Existing Federal Facilities, is designed to fulfill above requirements. Lessons are geared toward the technical side and give the participants background to select, analyze, evaluate and design energy conservation measures into existing facilities.

We are trying to schedule one session of this course next FY. Installation energy managers interested in attending this session should contact Joseph C. Pickett at (256) 895-7445 DSN 760.

POC is Harry Goradia, HQ U.S. Army Corps of Engineers, (202) 761-8622, Fax (202) 761-4139. PWD

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